

# Operating Instructions

## **Cable Glands Ex e for Steel Wire Armoured Cable with Sealing of the Outer Cable Sheath**

**> 8163/2-CWe**



## 1 Contents

1	Contents .....	2
2	General Information .....	2
3	General Safety Information .....	3
4	Designated Use .....	4
5	Technical Data .....	4
6	Transport, Storage and Disposal .....	5
7	Assembly .....	6
8	Commissioning .....	7
9	Maintenance .....	7
10	Accessories and spare parts .....	8
11	Type Examination Certificate (Page 1) .....	10
12	Declaration of Conformity .....	12

## 2 General Information

### 2.1 Manufacturer







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### 2.2 Information regarding the Operating Instructions

ID NO.: 138998 / 816360300140  
Publication Code: S-BA-8163/2-CWe-02-en-07/08/2008  
We reserve the right to make technical changes without notice.


### 2.3 Symbols Used

	Action prompt: Describes actions to be carried out by the user.
	Reaction symbol: Describes the results or the reactions to the actions taken.
	Bullet
	Information symbol: Describes the notes and recommendations.
	Warning sign: Danger from energised parts!
	Warning sign: Danger due to an explosive atmosphere!

### 3 General Safety Information

#### 3.1 Safety Instructions for Assembly and Operating Personnel

The operating instructions contain basic safety instructions which are to be observed during installation, operation and maintenance. Failure to observe these instructions can place persons, plant and the environment at risk.

 <b>WARNING</b>
<b>Risk due to unauthorised work on the device!</b> ▷ Risk of injury and damage to equipment. ▶ Assembly, installation, commissioning and servicing work must only be performed by personnel who are both authorised and suitably trained for this purpose.

##### **Before assembly/commissioning:**

- ▶ Read through the operating instructions.
- ▶ Give adequate training to the assembly and operating personnel.
- ▶ Ensure that the contents of the operating instructions are fully understood by the personnel in charge.
- ▶ The national installation and assembly regulations (e.g. IEC/EN 60079-14) apply.

##### **When operating the components:**

- ▶ Ensure the operating instructions are made available on location at all times.
- ▶ Observe safety instructions.
- ▶ Observe national health and safety regulations.
- ▶ Servicing/maintenance or repair work which are not described in the operating instructions must not be performed without prior agreement with the manufacturer.
- ▶ Any damage may render explosion protection null and void.
- ▶ Any alterations and modifications to the component impairing its explosion protection are not permitted.
- ▶ Install and use the component only if it is undamaged, dry and clean.

##### **If you have questions:**

- ▶ Contact the manufacturer.

#### 3.2 Warnings

Warnings are sub-divided in these operating instructions according to the following scheme:

 <b>WARNING</b>
<b>Type and source of the danger!</b> ▷ Possible consequences. ▶ Measures to avoid danger.

They are always identified by the signal word “WARNING” and sometimes also have a symbol which is specific to the danger involved.

### 3.3 Conformity to Standards


The cable glands comply with the following regulations and standards:

- ✗ Directive 94/9/EC
- ✗ IEC/EN 60079-0, IEC/EN 60079-1, IEC/EN 60079-7, IEC/EN 60079-15
- ✗ IEC/EN 61241-0, IEC/EN 61241-1

## 4 Designated Use

The cable gland is used to introduce permanently installed cables into electrical equipment of type of protection Increased Safety "e", Protection by Enclosure "tD" and Restricted Breathing "nR" (ATEX).

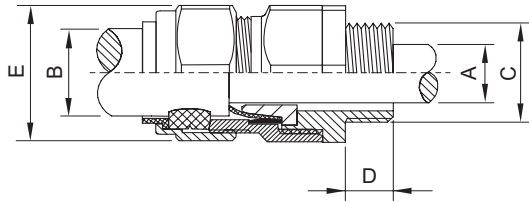
It is approved for use in hazardous areas of zones 1, 2 and zones 21 (ATEX), 22 (ATEX).

 <b>WARNING</b>	
<b>Only use the component for its intended purpose!</b>	
▷	Otherwise, the manufacturer's liability and warranty will be rendered void.
▶	Only use the component under the operating conditions described in the operating instructions.
▶	The component must be used in hazardous areas only according to these operating instructions.

## 5 Technical Data

Explosion protection	
ATEX	
Zone 1 / 21	II 2 GD Ex e II / Ex tD A21 IP66
Zone 2	II 3 G Ex nR II
IECEx	
Zone 1 / 21	Ex e II / Ex tD A21 IP66
Certificates	
ATEX	
Zone 1 / 21	SIRA 06 ATEX 1188 X
Zone 2	SIRA 07 ATEX 4327 X
IECEx	IECEx SIR 06.0078 X
Type of Protection	IP66
Version	BS 6121, EN 50262
Operating temperature range	- 60 °C ... + 130 °C
Material	
Cable gland	Brass
Seal	SOLO LSF

**Dimensional drawings** (all dimensions in mm) - subject to alterations



07599E00

Gland size	Dimensions [mm]						Braid thickness [mm]
	Thread size C	Inner sheath A	Outer sheath B		Thread length D	Across corners E	
			max.	min.			
20s/16	M20 x 1.5	8.7	6.1	11.5	15	26.5	0.90 ... 1.00
20s	M20 x 1.5	11.7	9.5	15.9	15	26.5	0.90 ... 1.25
20	M20 x 1.5	14.0	12.5	20.9	15	33.3	0.90 ... 1.25
25s	M25 x 1.5	20.0	14.0	22.0	15	39.9	1.25 ... 1.60
25	M25 x 1.5	20.0	18.2	26.2	15	39.9	1.25 ... 1.60
32	M32 x 1.5	26.3	23.7	33.9	15	51.0	1.60 ... 2.00
40	M40 x 1.5	32.2	27.9	40.4	15	61.0	1.60 ... 2.00
50s	M50 x 1.5	38.2	35.2	46.7	15	66.5	2.00 ... 2.50
50	M50 x 1.5	44.1	40.4	53.1	15	78.6	2.00 ... 2.50
63s	M63 x 1.5	50.0	45.6	59.4	15	83.0	2.00 ... 2.50
63	M63 x 1.5	56.0	54.6	65.9	15	89.0	2.00 ... 2.50
75s	M75 x 1.5	62.0	59.0	72.1	15	101.6	2.00 ... 2.50
75	M75 x 1.5	68.0	66.7	78.5	15	111.1	2.00 ... 2.50

## 6 Transport, Storage and Disposal

### Transport

- Shock-free in its original carton, do not drop, handle carefully.


### Storage

- Store in a dry place in its original packaging

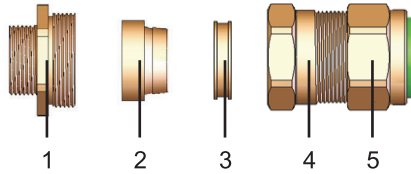
### Disposal

- Ensure environmentally friendly disposal of all components according to legal regulations.

## 7 Assembly

	<p>We recommend the usage of a sealing ring between the enclosure wall and the male union.</p>
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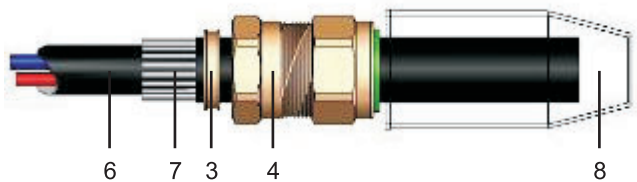
### Overview



07551E00

- 1 Male union
- 2 Cone
- 3 Clamping ring
- 4 Adapter
- 5 Union nut

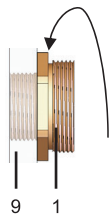
### Preparing installation



07553E00

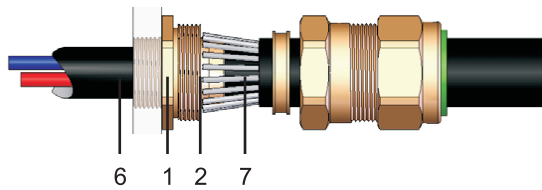
- ▶ Insert the cable (6) into the PVC shroud (8) if necessary.
- ▶ Insert the cable (6) into the adapter (4).
- ▶ Insert the cable (6) into the clamping ring (3).
- ▶ Remove the cable outer sheath and uncover the armour and according to the device geometry.
- ▶ Additionally, remove max. 18 mm of the cable outer sheath and uncover the armour (7).

### Installation



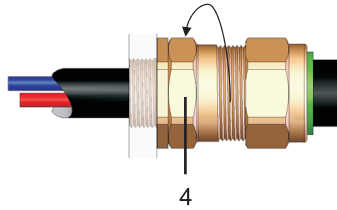
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- ▶ If necessary insert male union (1) into sealing ring.
- ▶ Screw male union (1) into enclosure (9).



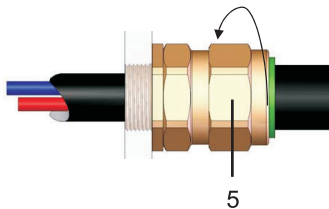
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- ▶ Plug the cone (3) in correct position and according to the armour type into the male union (1).
- ▶ Push cable (6) through male union (1).
- ▶ Slide the armour (8) over the cone.



07561E00

- ▶ Screw in adapter (4).



07560E00

- ▶ Tighten the union nut (5).
- ▶ Install the cable in the enclosure.

## 8 Commissioning

Before commissioning the device with the cable gland, make sure that

- ✗ the cable gland is not damaged.
- ✗ if necessary the sealing ring is present and mounted correctly.
- ✗ unused holes are sealed by stopping plugs certified to Directive 94/9/EC.
- ✗ the cables have been inserted correctly.
- ✗ the bearing surfaces for the cable gland (sealing ring) are flat.

## 9 Maintenance

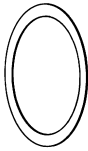
- ▶ Consult the relevant national regulations (e.g. IEC/EN 60079-17) to determine the type and extent of inspections.
- ▶ Plan the intervals so that any defects in the equipment which may be anticipated are promptly detected.

### Check during maintenance:


- ✗ Compliance with the permitted temperatures in accordance with IEC/EN 60079-0.
- ✗ the cable glands for cracks.
- ✗ the seals for damage.

## 10 Accessories and spare parts

 <b>WARNING</b>
<b>Use of non-approved accessories and spare parts.</b>
▷ The manufacturer's liability and warranty will be rendered void.
▶ Use only original accessories and original spare parts manufactured by R. STAHL.

Designation	Illustration	Description				Order number	Weight kg
PVC shroud		Designation	Gland size	Across flats	Across corners		--
		HV04	20S/16 or 20S	24	26.6	109076	0.017
		HV06	20	30.5	33.3	109078	0.024
		HV09	25S or 25	37.5	40.5	109080	0.033
		HV11	32	46	51	109082	0.040
		HV15	40	55	61	109084	0.070
		HV18	50S	60	66.5	109085	0.075
		HV21	50	70	78.6	109086	0.230
		HV23	63S	75	83.2	109094	0.117
		HV25	63	80	89	109096	0.158
		HV28	75S	89	101.6	109099	0.460
		HV30	75	99	111.1	109101	0.400
Sealing ring	 04968T00	Thread size	Minimum thickness	Outer diameter			--
		M16	2.0	25.4		167668	0.001
		M20	2.0	28.6		111778	0.001
		M25	2.0	35.0		111779	0.001
		M32	2.0	44.5		111780	0.001
		M40	2.0	50.8		167671	0.001
		M50	2.0	65.0		167672	0.001
		M63	2.0	76.2		167673	0.001
		M75	2.0	95.0		167674	0.001



Designation	Illustration	Description	Order number	Weight kg
Lock nut	 05865E00	To fasten the cable glands in through holes For cable glands		--
		Type                      Thread size                      Packing unit		
		Brass, nickel-plated                      M16 x 1.5                      50	138383	0.135
		Brass, nickel-plated                      M20 x 1.5                      50	138389	0.241
		Brass, nickel-plated                      M25 x 1.5                      50	138395	0.348
		Brass, nickel-plated                      M32 x 1.5                      25	138401	0.267
		Brass, nickel-plated                      M40 x 1.5                      10	138407	0.218
		Brass, nickel-plated                      M50 x 1.5                      4	138413	0.109
		Brass, nickel-plated                      M63 x 1.5                      1	138418	0.054
		Brass nickel-plated                      M 75 x 1.5                      1	110877	0.151

# 11 Type Examination Certificate (Page 1)



## SCHEDULE

### EC TYPE-EXAMINATION CERTIFICATE

Sira 06ATEX1188X  
Issue 2

#### ii) 8163/2-\*\*\*\*-C\*\*\*/\*-\*\* Type ranges of cable glands

Coded: II 2GD  
Ex e II  
Ex tD A21 IP66

The 8163/2-\*\*\*\*-C\*\*\*/\*-\*\* series Type ranges of cable glands consist of a male-threaded front entry component, which is intended to screw into an entry point of its associated enclosure in accordance with relevant codes of practice. The front entry component to main body mating thread may be fitted with an optional 'O' ring seal to provide increased ingress protection. Clamping of the armoured or braid is effected by a combination of the front entry component, main body and the different optional armour cone and armour sleeve combinations being fastened together. An outer seal nut, containing an Evoprene Super G621 elastomeric sealing ring and a Nylon 6 ferrule, threads onto the main body and effects environmental sealing onto the cable outer sheath.

Cable clamping is achieved with the outer seal arrangement.

#### Additional Specific Design options

- The use of alternative armour clamping components specified by the cable gland type designation. The various arrangements vary the cable gland suitability for differing armour or braided type cables.
- The use of a component having an alternative profile allowing an integral earthing facility. The type designation identifying the cable gland being fitted with this option.
- Alternative material of manufacture of the ferrule to be the same as the gland material.

The gland and seal sizes are determined by the entry thread and cable range take sizes:

Gland size	Entry thread	Cable inner sheath Ø	SWA		STA, strip armour & wire braid		Outer seal sheath range Ø	
		Max (mm)	Min (mm)	Max (mm)	Min (mm)	Max (mm)	Min (mm)	Max (mm)
20s/16	M20 x 1.5	8.7	0.9	1.00	0	1.0	6.1	11.5
20s	M20 x 1.5	11.7	0.9	1.25	0	1.0	9.5	15.9
20	M20 x 1.5	14.0	0.9	1.25	0	1.0	12.5	20.9
25s	M25 x 1.5	20.0	1.25	1.6	0	1.0	14.0	22.0
25	M25 x 1.5	20.0	1.25	1.6	0	1.0	18.2	26.2
32	M32 x 1.5	26.3	1.6	2.0	0	1.0	23.7	33.9
40	M40 x 1.5	32.2	1.6	2.0	0	1.0	27.9	40.4
50s	M50 x 1.5	38.2	2.0	2.5	0	1.0	35.2	46.7
50	M50 x 1.5	44.1	2.0	2.5	0	1.0	40.4	53.1
63s	M63 x 1.5	50.0	2.0	2.5	0	1.0	45.6	59.4
63	M63 x 1.5	56.0	2.0	2.5	0	1.0	54.6	65.9
75s	M75 x 1.5	62.0	2.0	2.5	0	1.0	59.0	72.1
75	M75 x 1.5	68.0	2.0	2.5	0	1.0	66.7	78.5
90	M90 x 2.0	80.0	3.15	3.15	0	1.6	76.2	90.4
100	M100 x 2.0	91.0	3.15	4.0	0	1.6	86.1	101.5

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Form 9400 Issue1

Page 7 of 14

### Sira Certification Service

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Web: [www.siracertification.com](http://www.siracertification.com)





1 **TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

3 Certificate Number: **Sira 07ATEX4327X** Issue: **2**

4 Equipment: **Ranges of Cable Glands (See Descriptions)**

5 Applicant: **R. STAHL Schaltgeräte GmbH**

6 Address: Am Bahnhof 30  
74638 Waldenburg (Württ)  
Germany

7 This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

8 Sira Certification Service certifies that this equipment has been found to comply with the Essential Health and Safety Requirements that relate to the design of Category 3 equipment, which is intended for use in potentially explosive atmospheres. These Essential Health and Safety Requirements are given in Annex II to European Union Directive 94/9/EC of 23 March 1994.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule of this certificate, has been assessed by reference to:

EN 60079-0:2004  
EN 60079-15:2003

10 If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

11 This TYPE EXAMINATION CERTIFICATE relates only to the design of the specified equipment, and not to specific items of equipment subsequently manufactured.

12 The marking of the equipment shall include the following:



II 3 G  
Ex nR II

Project Number 51M16472  
C. Index 07

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D R Stubbings BA MIET  
Certification Manager

Form 9400 Issue 1

Page 1 of 12

**Sira Certification Service**

Rake Lane, Eccleston, Chester, CH4 9JN, England

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Web: [www.siracertification.com](http://www.siracertification.com)



**Konformitätserklärung**  
*Declaration of Conformity*  
*Déclaration de Conformité*



**R. STAHL Schaltgeräte GmbH • Am Bahnhof 30 • 74638 Waldenburg, Germany**  
erklärt in alleiniger Verantwortung, declares in its sole responsibility, déclare sous sa seule responsabilité,

dass das Produkt:  
that the product:  
que le produit:

**Kabel- und Leitungseinführung**  
Cable glands  
Entrée de cable

Typ(en), type(s), type(s):

8163/2-....-....

mit den Anforderungen der folgenden Richtlinien und Normen übereinstimmt.  
is in conformity with the requirements of the following directives and standards.  
est conforme aux exigences des directives et des normes suivantes.

Richtlinie(n) Directive(s) Directive(s)	Norm(en) Standard(s) Norme(s)
94/9/EG: ATEX-Richtlinie 94/9/EC: ATEX Directive 94/9/CE: Directive ATEX	EN 60079-0:2012 EN 60079-1:2007 EN 60079-7:2007 EN 60079-31:2009

Kennzeichnung, marking, marquage:

II 2 G Ex d IIC Gb  
II 2 G Ex e IIC Gb  
Ex II 2 D Ex tb IIIC T 80°C Db  
I M2 Ex d I Mb  
I M2 Ex e I Mb

CE 0158

**EG-Baumusterprüfbescheinigung:**  
EC Type Examination Certificate:  
Attestation d'examen CE de type:

**Sira 06 ATEX 1188 X**  
(Sira Certification Service,  
Rake Lane, Eccleston, Chester, CH4 9JN, England, NB0518)

**Produktnormen nach Niederspannungsrichtlinie:**  
Product standards according to Low Voltage Directive:  
Normes des produit pour la Directive Basse Tension:

EN 50262:1998 + A1:2001 + A2:2004

2004/108/EG: EMV-Richtlinie  
2004/108/EC: EMC Directive  
2004/108/CE: Directive CEM

Nicht zutreffend nach Artikel 1, Absatz 3.  
Not applicable according to article 1, paragraph 3.  
Non applicable selon l'article 1, paragraphe 3.

**Sonstige Normen:**  
Other Standards:  
Autres normes:

BS 6121:1989

Spezifische Merkmale und Bedingungen für den Einbau siehe Betriebsanleitung.  
Specific characteristics and how to incorporate see operating instructions.  
Caractéristiques et conditions spécifiques pour l'installation voir le mode d'emploi.

Waldenburg, Datum

Ort und Datum  
Place and date  
Lieu et date

Steffen Buhl  
Leiter Entwicklung Schaltgeräte  
Director R&D Switchgear  
Directeur R&D Appareillage

J.-P. Rückgauer  
Leiter Qualitätsmanagement  
Director Quality Management  
Directeur Assurance de Qualité





